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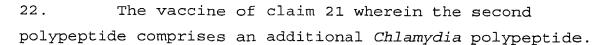
## CLAIMS:

- 1. A nucleic acid molecule comprising a nucleic acid sequence which encodes a polypeptide selected from any one of:
  - (a) SEQ ID No: 2;
- 5 (b) an immunogenic fragment comprising at least 12 consecutive amino acids from a polypeptide of (a); and
  - (c) a polypeptide of (a) or (b) which has been modified to improve its immunogenicity, wherein said modified polypeptide is at least 75% identical in amino acid sequence to the corresponding polypeptide of (a) or (b).
  - 2. A nucleic acid molecule comprising a nucleic acid sequence selected from any one of:
    - (a) SEQ ID Nos: 1;
  - (b) a sequence which encodes a polypeptide encoded by SEQ ID No: 1;
    - (c) a sequence comprising at least 38 consecutive nucleotides from any one of the nucleic acid sequences of (a) and (b); and
- (d) a sequence which encodes a polypeptide which is 20 at least 75% identical in amino acid sequence to the polypeptides encoded by SEQ ID No: 1.
  - 3. A nucleic acid molecule comprising a nucleic acid sequence which is anti-sense to the nucleic acid molecule of claim 1.
- 25 4. A nucleic acid molecule comprising a nucleic acid sequence which encodes a fusion protein, said fusion protein

comprising a polypeptide encoded by a nucleic acid molecule according to claim 1 and an additional polypeptide.

- 5. The nucleic acid molecule of claim 4 wherein the additional polypeptide is a heterologous signal peptide.
- 5 6. The nucleic acid molecule of claim 4 wherein the additional polypeptide has adjuvant activity.
  - 7. The nucleic acid molecule according to claim 1, operatively linked to one or more expression control sequences.
- 8. A vaccine comprising at least one first nucleic acid according to claim 1, and a vaccine vector wherein each first nucleic acid is expressed as a polypeptide, the vaccine optionally comprising a second nucleic acid encoding an additional polypeptide which enhances the immune response to the polypeptide expressed by said first nucleic acid.
- 15 9. The vaccine of claim 8 wherein the second nucleic acid encodes an additional *Chlamydia* polypeptide.
  - 10. A pharmaceutical composition comprising a nucleic acid according to claim 1 and a pharmaceutically acceptable carrier.
- 20 11. A pharmaceutical composition comprising a vaccine according to claim 8 and a pharmaceutically acceptable carrier.
  - 12. A unicellular host transformed with the nucleic acid molecule of claim 7.
- 13. A nucleic acid probe of 5 to 100 nucleotides which
  25 hybridizes under stringent conditions to the nucleic acid
  molecule of SEQ ID No: 1, or to a homolog or complementary or
  anti-sense sequence of said nucleic acid molecule.

- 14. A primer of 10 to 40 nucleotides which hybridizes under stringent conditions to the nucleic acid molecules of SEQ ID No: 1, or to a homolog or complementary or anti-sense sequence of said nucleic acid molecule.
- 5 15. A polypeptide comprising an amino acid sequence selected from any one of:
  - (a) SEQ ID No: 2;
  - (b) an immunogenic fragment comprising at least 12 consecutive amino acids from a polypeptide of (a); and
- (c) a polypeptide of (a) or (b) which has been modified to improve its immunogenicity, wherein said modified polypeptide is at least 75% identical in amino acid sequence to the corresponding polypeptide of (a) or (b).
  - 16. A fusion polypeptide comprising the polypeptide of claim 15 and an additional polypeptide.
    - 17. The fusion polypeptide of claim 16 wherein the additional polypeptide is a heterologous signal peptide.
    - 18. The fusion protein of claim 16 wherein the additional polypeptide has adjuvant activity.
  - 20 19. A method for producing a polypeptide of claim 15, comprising the step of culturing a unicellular host according to claim 12.
    - 20. An antibody against the polypeptide of claim 15.
  - 21. A vaccine comprising at least one first polypeptide
    25 according to claim 15 and a pharmaceutically acceptable
    carrier, optionally comprising a second polypeptide which
    enhances the immune response to the first polypeptide.



- 23. A pharmaceutical composition comprising a polypeptide according to claim 15 and a pharmaceutically acceptable carrier.
- 24. A pharmaceutical composition comprising a vaccine according to claim 21 and a pharmaceutically acceptable carrier.
- 25. A pharmaceutical composition comprising an antibody 10 according to claim 20 and a pharmaceutically acceptable carrier.
  - 26. A method for preventing or treating *Chlamydia* infection using the nucleic acid of claim 1.
- 27. A method for preventing or treating *Chlamydia*15 infection using the vaccine of claim 8.
  - 28. A method for preventing or treating *Chlamydia* infection using the pharmaceutical composition of claim 10.
  - 29. A method for preventing or treating *Chlamydia* infection using the polypeptide of claim 15.
- 20 30. A method for preventing or treating *Chlamydia* infection using the antibody of claim 20.
  - 31. A method of detecting *Chlamydia* infection comprising the step of assaying a body fluid of a mammal to be tested with the nucleic acid of claim 1.
- 25 32. A method of detecting *Chlamydia* infection comprising the step of assaying a body fluid of a mammal to be tested with the polypeptide of claim 15.

- 33. A method of detecting *Chlamydia* infection comprising the step of assaying a body fluid of a mammal to be tested with the antibody of claim 20.
- 34. A method for identifying the polypeptide of claim 15 which induces an immune response effective to prevent or lessen the severity of *Chlamydia* infection in a mammal previously immunized with polypeptide, comprising the steps of:
  - (a) immunizing a mouse with the polypeptide; and
  - (b) inoculating the immunized mouse with Chlamydia;
- wherein the polypeptide which prevents or lessens the severity of *Chlamydia* infection in the immunized mouse compared to a non-immunized control mouse is identified.
  - 35. Expression plasmid pCACPNM209.
  - 36. A nucleic acid molecule of SEQ ID NOS. 3 of 4.
- 15 37. A peptide of any one of SEQ ID NOS. 5 to 7.
  - 38. An isolated ATP-binding cassette from Chlamydia.